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Subject: FortiGate flash disk errors
Product: FortiGate low end devices

Description:

FortiGate devices with internal storage running FortiOS 5.0 or 5.2 may experience flash disk errors in cases where the flash disk has reached a finite number of program-erase cycles (typically written as P/E cycles).

While Fortinet has designed all flash-based units with this limitation in mind under expected usage, experience with a very low proportion of users shows that an issue can be caused by excessive writing, updating, and modification of files on the flash disks. Features in FortiOS that may cause heavy disk usage are:

1. Disk logging
2. WanOpt & WebCache
3. Local-in policies
4. Device identification
5. DHCP and/or PPPoE
6. Excessive reboots or power cycles

Typical symptoms experienced once this condition is met can be (but not limited to) as follows:

- Problems accessing web GUI
- Failure to execute CLI commands
- 99% CPU usage by system
- Connectivity issues
- Partial or total functionality failure of device (usually DHCP stops working)
- Alerts and error messages found in the event log as below:

```
EXT3-fs: group descriptors corrupted !  
EXT3-fs error (device sd(8,3)): ext3_check_descriptors: Block bitmap for group 17  
not in group (block 17334272)!
```

OR

The following critical firewall event was detected: Kernel error.

```
date=2015-10-19 time=08:49:12 devname=FortiGate devid=FGT60D3912621349
logid=0100020010 type=event subtype=system level=critical vd="root" logdesc="Kernel
error" msg="EXT3-fs error (device sd(8,3)): ext3_get_inode_loc: unable to read inode
block - inode=132, block=8"
```

OR

```
EXT2-fs error (device sd(8,3)): ext2_free_blocks: Freeing blocks not in datazone -
block = 4294967295, count = 1
```

- Boot failures and error messages during boot up:

```
Initializing firewall...
```

```
System is starting...
```

```
Starting system maintenance...
```

```
Scanning /dev/mtd1... (100%)
```

```
Formatting shared data partition ... done!
```

```
EXT3-fs: error loading journal.
```

```
EXT3-fs: error loading journal.
```

Potentially Affected Products:

Low end FortiGate/FortiWifi models with flash storage

20C, 40C, 60C, 80C,

60D, 90D, 100D

Potentially Affected OS:

FortiOS 4.x

FortiOS 5.0

FortiOS 5.2

Remedy:

The issue may be temporarily addressed by formatting boot disk and log disk. Should the issue occur, which would suggest the flash disk has reached its lifetime, you should create an RMA case and attach your current/backup configuration file and self test HQIP logs.

Improvements to minimize this issue will be included in FortiOS 5.2.5 patch release and 5.4.0 minor release, the current ETA for release of both versions is December 2015.

Fortinet recommend customers to upgrade to FortiOS 5.2.5 or later as soon as it is available in order to minimize flash wear. Not doing so may result in a reduced life time of the device and cause high RMA return rates.

Special notes

1. Disk logging

- a. The 5.0.2 release notes advises against enabling this feature. Starting from 5.0.6, this

feature is disabled by default on units with flash disk.

- b. It is possible to enable it from the CLI and when one does so a notification message is displayed: “enabling disk logging impacts overall performance and reduces the lifetime of the unit.”.
- c. You should avoid usage of disk logging on all units and use remote logging storage such as FortiAnalyzer or FortiCloud.

Technical Support Contact Information: http://www.fortinet.com/support/contact_support.html

Fortinet technical support home page: <https://support.fortinet.com>

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